4*78 X O'l =about 0*5 kilogramme Fe ; and an amount of silica of 1 per cent, on the weight of charge derived from all auxiliary materials, in addition to the wear of the furnace structure, is thus the cause of a furthur iron loss of O5 per cent, of iron . . . (45A).
The loss of charge which is produced owing to the agents Mn and P is equal to the amounts of these materials eliminated, since according to the method of calculation adopted, the resulting quantities of slags do not contain iron. (The manganese protoxide is calculated as silicate slag, and the phosphate of lime is assumed to be dissolved in the silicate slag.)

(/'„) TDK RESULT OF THK GHKMICAL ACTION OF TIIK FLAMH.

The chemical action of the furnace gases manifests itself in the transfer of oxygen to the metallic charge. The primary action is scale formation, which in turn gives rise to slag formation ; the oxides in the slag act now, under the influence of the heat liberated by the furnace gases, on the reducing agents in the metal, whereby the composition of the inetal as well as that of the slag is changed.
If, however, the composition of the materials charged and of the finished metal, and the composition of the final slag are known, so the means are given of measuring the oxidising action of the flame.
The amount of oxygen liberated by the flame is contained in the oxidation products of the agents attacked. From the loss of Si, P, Mn and C by the metal, one can ascertain by use of the values given by (82) to (35) the quantities of oxygen which have been absorbed by these agents; whilst the balance is present in the amount of ferrous oxide, which is contained in the final slag.
The oxidising action of the furnace gases is naturally very varied; nevertheless one can in general assert that most of the large furnaces at present employed are able by means of the oxidising action alone, to work charges of steel, which consist of ^about 80 per cent, pig iron of a composition of about 4 per cent. C, 2 per cent. Mn, 1 per cent. Si, 0*5 per cent. P